NOTES ON THE GENUS SPHAEROTARSUS (ACARINA: SMARIDIDAE)

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SUMMARY

The egg, larva and adult male and female of *Sphaerotarsus leptopilus*, Womersley and Southcott, 1941, are described; the species was hitherto known only from the nymphal stage. The nymph and adults were correlated on morphological characters.

The two adults were captured under Eucalypt bark, at Myponga, South Australia, in late December. The female laid eggs in January-February, and these hatched to larvae during April-May. The larvae survived into June. Some observations were made on the biology of the species. Attempts to rear the species beyond the larval stage were unsuccessful, as no suitable insect host could be found. Aspects of the biology of the Smarididae are discussed.

The systematics of the adults and nymphs of the genus *Sphaerotarsus*, Womersley, 1936, are revised.

INTRODUCTION

In 1941 Womersley and Southcott reviewed the systematics of the Smarididae of Australia and New Zealand. Among new species described was *Sphaerotarsus leptopilus*, Womersley and Southcott, which was described from a single nymph obtained by sweeping teatree (*Melaleuca halmaturorum*, F. v. M.) along the banks of the Hindmarsh River, Victor Harbor, South Australia. That nymph was distinct from the other described post-larval stages in the narrowness of the dorsal setae (idiosomalae), as well as in other characters.

Some years ago the present writer captured two adult Smaridids at Myponga, South Australia. Those adults were kept in the same tube, and both have been identified finally, on morphology, as the adults of *S. leptopilus*. At the time of capture the male was identified as belonging to *Sphaerotarsus*, this recognition being easy on account of the great enlargement of the fourth tarsus of the male, but the female was not generically identified (if desired this can be done by immobilizing them under one or more cover-glasses on a microscopic slide; they can then be identified after examination with the high power of the microscope for study of the eyes, crista, sensillae and dorsal setae; they suffer no damage if carefully handled).

The female laid eggs in captivity, which hatched to larvae. Larvae belonging to this genus have not been observed hitherto. In a recent monograph (1960) of the systematics of the genera of the superfamily Erythraeoidea the writer drew up a set of generic characters for larval *Sphaerotarsus*, using these larvae.

It is proposed in the present paper to describe the adult male and female, the egg stage, and the larva of *Sphaerotarsus leptopilus*. It is proposed also to describe the experiment in detail and to remark on significant aspects of the

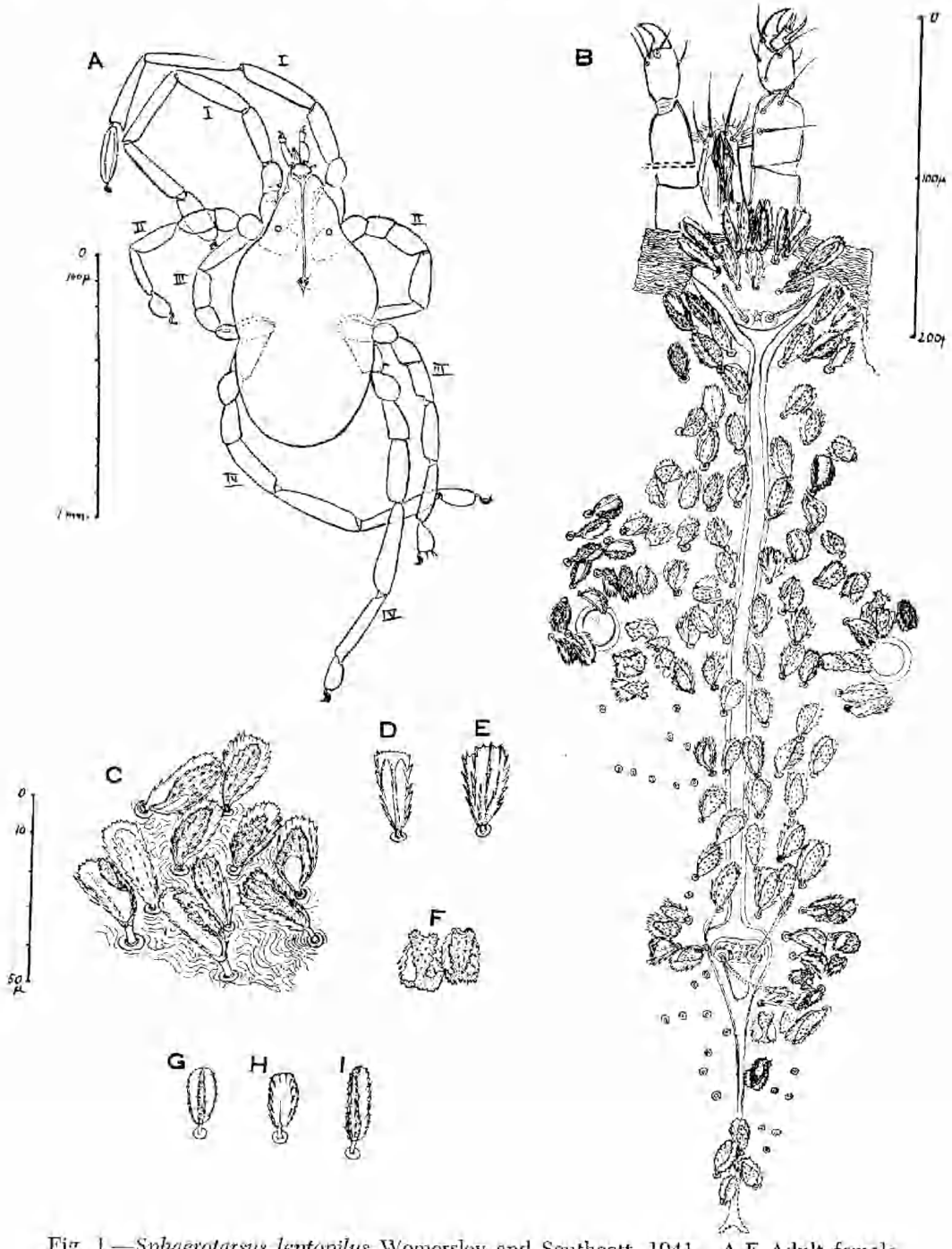

Fig. 1.—*Sphaerotarsus leptopilus* Womersley and Southcott, 1941. A-F Adult female. A, Entire, dorsal view, setae mostly omitted; B, Mouthparts, crista, eyes and adjacent setae (ventral view of palp on left); C-F dorsal idiosomal setae, C *in situ*, showing dorsal and lateral aspects, D, E from below (optical section), F end view; G-I nymph, dorsal idiosomal setae, G from above, H from below, I a longer seta (Figs. G-I based on figures of Womersley and Southcott, 1941). (All setae (C-I) to same scale on left, the same as Fig. 2 A.)

biology of this mite seen in the experiment. Some aspects of the systematics of the genus *Sphaerotarsus* will be discussed, and a revised key given for the separation of the post-larval active stages of the four known species.

Sphaerotarsus leptopilus Womersley and Southcott, 1941

Figs. 1-4

Description of adult female (Fig. 1 A-F) (from specimen ACA 1504): Colour orange, with brown setae. Idiosoma of the usual Smaridid form, flattened, elongate, slightly waisted and somewhat pointed anteriorly (i.e. with a short blunted nasus). Idiosomal length 1070μ to tip of nasus, idiosoma 530μ wide where widest.

Crista present, normal, with two sensillary areas. Anterior sensillary area placed in a Y formed by the division of the anterior end of the crista; it carries 12 setae (scobalae), similar to the normal dorsal idiosomalae, 22-30μ long; 7 of these are pigmented, the others unpigmented. Anterior sensillae slender, clavate, with short ciliations along the entire length, these longer over the elongate-spindle-shaped terminal club of the sensilla; anterior sensillae 24μ long. Posterior sensillary area as figured (Fig. 1B); there is a central boss, somewhat nodular, which forms a transverse oblong. The posterior sensillae are set in the central boss; they are clavate, ciliated along their entire length, the terminal club as in the anterior sensillae, elongate-spindle-shaped; posterior sensillae 50μ long. The crista continues some distance beyond the posterior sensillary area, and in the specimen divides terminally as figured into two short divaricating arms. Length of crista behind the centres of the posterior sensillae (PP distance) approximately 175μ.

The standard data* are:

ASens	PSens	SBa	SBp	ISD	DS
24μ	50μ	14μ	17μ	391μ	20-28μ

Eyes one on each side, circular, 30μ across. Eyes placed a little before the midpoint of crista (i.e. the midpoint between the centres of the anterior and posterior cristal sensillae). Distance anterior sensillae-eye centres in the median plane (OAS) 207μ; distance between eye centres and midpoint between posterior cristal sensillae in the median plane (OPS) 184μ.

Dorsal idiosomal setae typically Smaridid in type. They have a strong roughened dorsal flange, strongly convex, lanceolate, about one-half or two-thirds the width of the seta. The dorsal flange carries 4-5 irregular rows of projections (modified ciliations), and frequently the dorsal flange has a basal excavation (these scobalae are similar to those of *Hirstiosoma novaehollandiae* (Womersley, 1936) from New Zealand—see Womersley and Southcott, 1941, p. 71). Dorsal setae 20-28μ long. Some setae are pigmented, others not. Those on the anterior part of the dorsum of the idiosoma and particularly around the crista are mostly unpigmented. Those of the posterior half of the dorsum of the idiosoma and also of the more lateral aspects of the dorsum of the idiosoma are mostly pigmented. The dorsal setae are somewhat longer at the posterior part of the idiosoma.

Venter of idiosoma with bushy strongly ciliated idiosomalae of the usual Smaridid type.

Genitalia normal for female; lacking internal chitinous armature (in the preparation the ventral surface is not clearly seen, owing to its being mounted

* For these terms and the descriptive terms for the setae used in this paper, see the writer's (1960) monograph on the Erythraeoid genera.

normally, from the density of the dorsal idiosomal setation) (the sex of the specimen also clearly recognizable from the normal tarsus IV).

Legs as figured, of normal Smaridid appearance. Supraonychial tactile setae present (scobalae = tactalae), but not unduly prominent. Leg I 1660μ

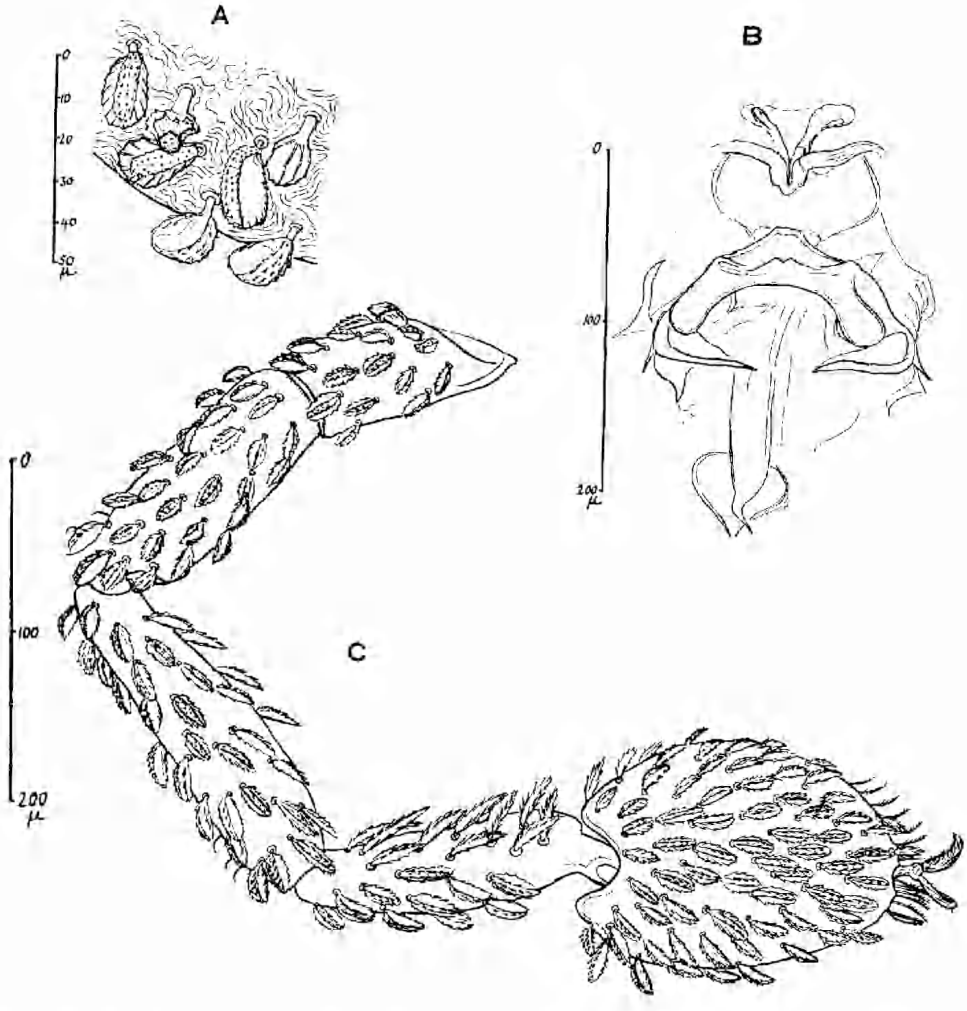

Fig. 2.—*Sphaerotarsus leptopilus* Womersley and Southcott, 1941, adult male. A, Some dorsal setae near the posterior pole of the idiosoma, selected for display of various aspects of the setae, the positions shown being in part due to the distortion of mounting (to same scale as Fig. 1, C-I). B, Internal genitalia from above, to show chitinized parts. C, Left leg IV, detached at the trochanterofemoral joint.

long, II 1020μ, III 1105μ, IV 1460μ (all including coxae and claws). Tarsus I 228μ long (excluding claws and pedicle) by 88μ wide (height not available); tibia I 320μ long. Tarsus IV 135μ long (excluding claws and pedicle) by 63μ high; tibia IV 307μ long.

Tarsal claws 2, normal, ciliated obliquely along their sides. Legs thickly provided with setae of normal type (i.e. scobalae); various other sensory setae are also present on the legs. The anterior tarsi thickly provided distally with short solenoidalae; a number of spinalae ("eupathidies") are present upon the middle segments (telofemora, genua, tibiae) of the legs.

Gnathosoma of normal Smaridid type, with extrusile palpi and mouth-cone, with the normal sleeve or armilla. Palpi normal, as figured; setae of palpi comparatively slender.

Description of adult male (Fig. 2 A-C) (from ACA 1505): The general appearance is as described for the female, the most significant points of difference being in the possession of the male internal genital armature, and the secondary sexual character of the greatly enlarged tarsus IV. Other differences are as detailed here.

Idiosomal length 855μ, maximum width 455μ. The standard data are:

ASens	PSens	SBa	SBp	ISD	DS
18μ	46μ	16μ	18μ	309μ	14-30μ

The crista extends only a short distance (32μ) behind the PSens; this is much shorter than in the female.

Eyes one on each side, 27μ across. OAS 166μ, OPS 143μ; hence the eyes are well anterior to the cristal intersensillary midpoint.

The dorsal idiosomal setae are somewhat more slender and regular than those of the female, and resemble more closely those of the nymphal *S. leptopilus*. They are less pigmented than the pigmented female dorsal idiosomalae, and the dorsal flange does not show the basal excavations. The dorsal flange has 4-5 rows of spicules, fairly regular (Fig. 2A). Dorsal setae 14-30μ long, the opisthosomal dorsal ones being considerably longer than those placed more anteriorly, and in fact the opisthosomal group forms almost a separate group with a reasonably sharp line of differentiation.

Genitalia with the normal internal male apparatus (Fig. 2B).

Legs (except IV) similar to those of female; leg I 1210μ long, II 730μ, III 790μ, IV 1015μ (all lengths including coxae and claws). Tarsus I 189μ long (exclusive of claws and pedicle) by 45μ high by 56μ across. Tibia I 215μ long. Tarsus IV greatly enlarged as usual, ovoid (see Fig. 2C), 173μ long (excluding claws and pedicle) by 120μ across. Leg setation as for female.

Gnathosoma as described for female.

Description of Egg (from those laid by ACA 1504): Colour orange-brown until the deutovum stage, then becoming deep red; smooth, spheroidal, 190-230μ long by about 165μ wide.

Description of Larva (Figs. 3, 4) (from ACA 1504L2 principally, including measurements, but description supplemented from ACA 1504L1). Colour, red. Length of idiosoma (unengorged) 325μ, width 230μ; animal 440μ long to the tip of the cheliceral blades. The idiosoma has the usual rather slender shape of the larval Smarididae.

Dorsal scutum roughly a transverse trapezoid, but somewhat rounded anteriorly, and posteriorly projecting in the median line into an acute point; hence almost stellate in outline (see Fig. 3); with two pairs of scutalae and two pairs of sensillae.

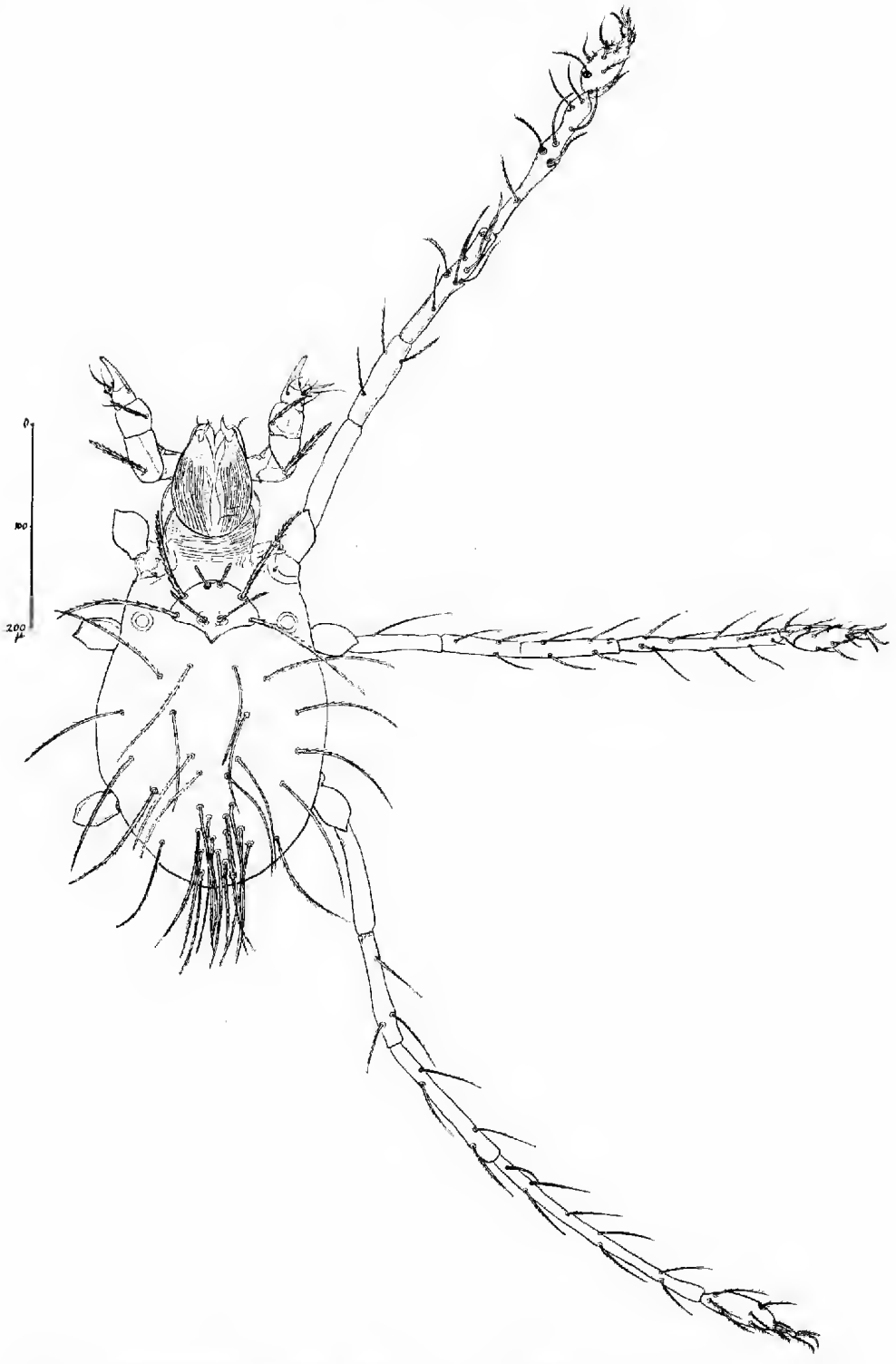

Fig. 3.—*Sphaerotarsus leptopilus* Womersley and Southcott, 1941, larva, dorsal aspect.

The standard data* of the two specimens used in the description are as follow:

Specimen	ACA1504L2	ACA1504L1
AW	55	52
MW*	—	—
PW	74	68
SBa†	11·5	10
SBp	13	14
ASB	11	9
ISD	35	34
L	68	73
W	81	82
A-P	22	16
AL	91	89
ML*	—	—
PL	125	108
ASens	27	32
PSens	60	58
ASB/ISD	·31	·26
DS	104-121	95-120

* Not available in tetrascutalate genera; listed here for the sake of completeness of Standard Data table.

† Strictly these are negative in *Sphaerotarsus* and *Clipeosoma*.

Scutalae long, tapering, with barb-like ciliations, the setae terminally blunted, AL thicker than PL and with coarser and more outstanding (bractate) ciliations. AL arise behind middle of anterolateral borders of the shield; PL arise inside the lateral angles of the shield. ASens arise well anterior to the AL scutalae in the projecting anterior part of the scutum. ASens with adpressed ciliations, and are slightly thickened in their distal part. PSens arise within the posterior triangular piece of the scutum. PSens longer than ASens, and with adpressed ciliations; PSens parallel-sided except distally where they taper a little.

Eyes one on each side, circular, 12μ across, in the unengorged specimen slightly behind the level of the PL scutalae.

Dorsal idiosomal setae long, strong, but are slender among larval Smarididae,† tapering, pointed, and with adpressed ciliations.

Venter: between coxae I a pair of scobalae (the sternalae), long, pointed, ciliated, 45μ long; in the central area of the venter between coxae II and III a pair of slender tapering scobalae with adpressed ciliations, 50μ long; well behind coxae III, on the ventral opisthosoma, are 2 rows of more robust setae, arranged 4, 2, similar to sternalae, 49-65μ long. Each coxa with one seta (coxala): that on I long, pointed, ciliated, 70μ long; on II pointed, slender, with faint adpressed ciliations, and 53μ long; on III more robust, pointed, ciliated, 60μ long.

Legs long and thin: I 650μ long, II 625μ, III 790μ (all lengths including coxae and claws). Each trochanter with one seta. Tarsus I thickened, fairly short, 71μ long (excluding claws and pedicle) by 31μ high.

* See Southcott (1960) for definitions of these.

† These setae are broadened in *Smaris* larval and in *Clipeosoma copiolarum*, Southcott, 1948, but are narrow in *Clipeosoma jupiter*, Southcott, 1960, and in *Pilosoma pluto*, Southcott, 1960, to list larval Erythracoidea whose position within the Smarididae is undoubted.

On the legs the following is the arrangement of the specialised setae:

	trichobothrialae (sensillae)	solenoidalae (solenidia)	spinalae (eupathidies)
genu I	2(+1 int.*)	2	4†
genu II	0	0	0
genu III	0	0	0
tibia I	5(+1 int.*)	3	0
tibia II	0	1	1†
tibia III	0	0	1†
tarsus I	2	2	0
tarsus II	0	1	0
tarsus III	0	0	0

* int. = intermediate type of sensilla, a modified or transitional scobala.

† These show possibly faint internal solenization, i.e. the development of the helical or banded striae characteristic of the solenoidalae. The solenoidalae and the spinalae may be difficult to distinguish.

Further comment on the chaetotaxy of the legs: On tarsus I there is a compound trichobothrial pit; such is not present on tarsus II or III. Companala present on tarsus I and tibia I, as figured. Vestigiala present on genu I and II as figured. Famulus (famala) present on tarsus I.

Tarsal claws: lateral (neolateral) claws identical, falciform, with long outstanding ventral ciliations and adpressed dorsal ciliations. Neomedian claw (empodium) falciform, more slender than the neolateral, similarly ciliated.

Gnathosoma as figured. Chelae bases ("mandibles") an ovoid mass, with finely punctate chitin, and striated longitudinally (see Fig. 3). Cheliceral blades simple. Galeala (galeal seta) curved, simple, 12μ long. Hypostomal lip present, delicate. Anterolateral hypostomala simple, 12μ long, situated on a chitinous thickening of the hypostome, 23μ from midline and about 22μ behind the tip of the cheliceral fang. Posteromedial hypostomala stronger, pointed, ciliated, 26μ long, arising from a chitinous boss close to the anterolateral hypostomala, but slightly inferior and posteromedial to it.

Palpal setal formula 1, 1, 3, 6. No palpal coxala or trochanterala present. Palpal supracoxala present, 4·5μ long. The claw of the palpal tibia curves anterolaterally, and has a short terminal split, 4μ long, with little or no separation of the two elements. There is no projecting process from the ventral or flexor aspect of the palpal tibial claw (which occurs in *Clipeosoma*). A stout accessory separate conical tooth present ventrally at the base of the tibial claw, 10μ long by 7μ wide, directed anteromedially.

The *nymph* (Fig. 1 G-I) was described in 1941 by Womersley and Southcott. The dorsal setae are illustrated here (by figures based on those of Womersley and Southcott, 1941) for comparison with those of the adults (female in Fig. 1 C-F, male in Fig. 2A, all to same scale).

Locality. The adult male (ACA 1505) and the adult female (ACA 1504) were both captured under bark of *Eucalyptus* sp. (not identified specifically, but presumably it was *Euc. cosmophylla* F. v. M., since it was a smooth-barked species) at Myponga, South Australia, on 31st December, 1951, by the writer, in *Eucalyptus baxteri-Eucalyptus cosmophylla* scrubland (the piece of scrubland concerned has since become the Nixon-Skinner Reserve). The larvae were reared from eggs laid by the adult female in captivity (see under biology).

Biology. The two adults, taken as recorded, were placed immediately in a dry tube, sealed with a cork. The only additional contents were water drop-

lets, which were given periodically for the mites to drink. The following account of the remainder of the experiment is from my notes (somewhat contracted and rephrased).

6th January, 1952. Mites are well. No eggs present. More water added.

27th January, 1952. The larger (female) mite was lying on her back, rather shrunken (due to dehydration), clasping the apparently dead male. There were no eggs in the tube. Further water was added.

24th February. The male unaltered, dead, dry. The female is well but shrunken. "There is a chain of about 21 brown smooth spheroidal eggs in the tube, which have obviously been laid by the larger Smaridid" (this was the first occasion on which the writer had ever seen eggs laid by any Smaridid mite, despite many attempts at rearing them over a number of years).

2nd March. The large (female) Smaridid feebie, shrunken, mostly lying on her back, but waving her legs about a good deal. When righted by my help the mite "walks a bit". The mite soon managed to get itself stuck in the water, but on turning around, drank. It remained in an attitude of drinking, and in about 5-10 minutes it had regained its normal form and was quite plump again. At this stage it managed to get itself stuck in the water again. I took it out of the tube to dry (this would have been done by placing it on a piece of blotting paper with a fine sable brush). "After an initial few minutes of incoordination and possibly of flexor spasms it ran quite actively." It was then placed in a clean fresh tube in an attempt to stop its fouling the eggs with mould. The dried male was removed from the tube of the eggs.

16th March. The eggs are beginning to sprout mould filaments, so no further water is to be added. The eggs are quite plump.

The adult female is lying on her back "in a tetanic state". Legs I are extended, the others are flexed. Occasionally one leg moves, and then flicks back to the flexed position. Still under observation some minutes later the mite flexed its left leg I to a right angle at the femorotibial joint, simultaneously extending right leg III, with the other legs remaining semiflexed; all this while the female was lying on her back. Water was added to the tube. (Note: no food was proffered to the adult mites at any stage, and the only possibility of their getting any food while in captivity lay in their attacking each other, or the eggs after oviposition. Such behaviour, however, has not up to the present been observed in any Smarididae or other Erythraeoidea.)

23rd March. The eggs appear possibly very slightly shrunken. The other tube containing the adult female is wet. The adult female lies immobile, and is beginning to sprout mould filaments. In her mouthparts a large amber globule of liquid is present. It was concluded she was dead, decomposing and mouldy. She remained thus, and was finally mounted through lactic acid to polyvinyl alcohol medium on 8th May, 1952.

On 25th April, 1952, one egg was observed to be in the deutovum stage, and of the others it was recorded they "nearly all look plump and healthy".

On 5th May (the next observation) six larvae had hatched, the other eggs remaining unhatched and appearing healthy.

On 7th May 11 larvae were present in the tube. Two were removed for mounting and study (ACA 1504 L1 and L2).

On 8th May the larvae in the tube appeared well. Two days later "about 3" of the larvae were stated to be "dead or look very poorly". Insects obtained from Heywood Park, South Australia, were added to the tube to serve as possible hosts for the larvae, during the afternoon and evening. Among insects offered initially were various small Diptera, Hymenoptera and Homoptera, including an unidentified Delphacid, as well as Psylloidea of the genera *Spon-*

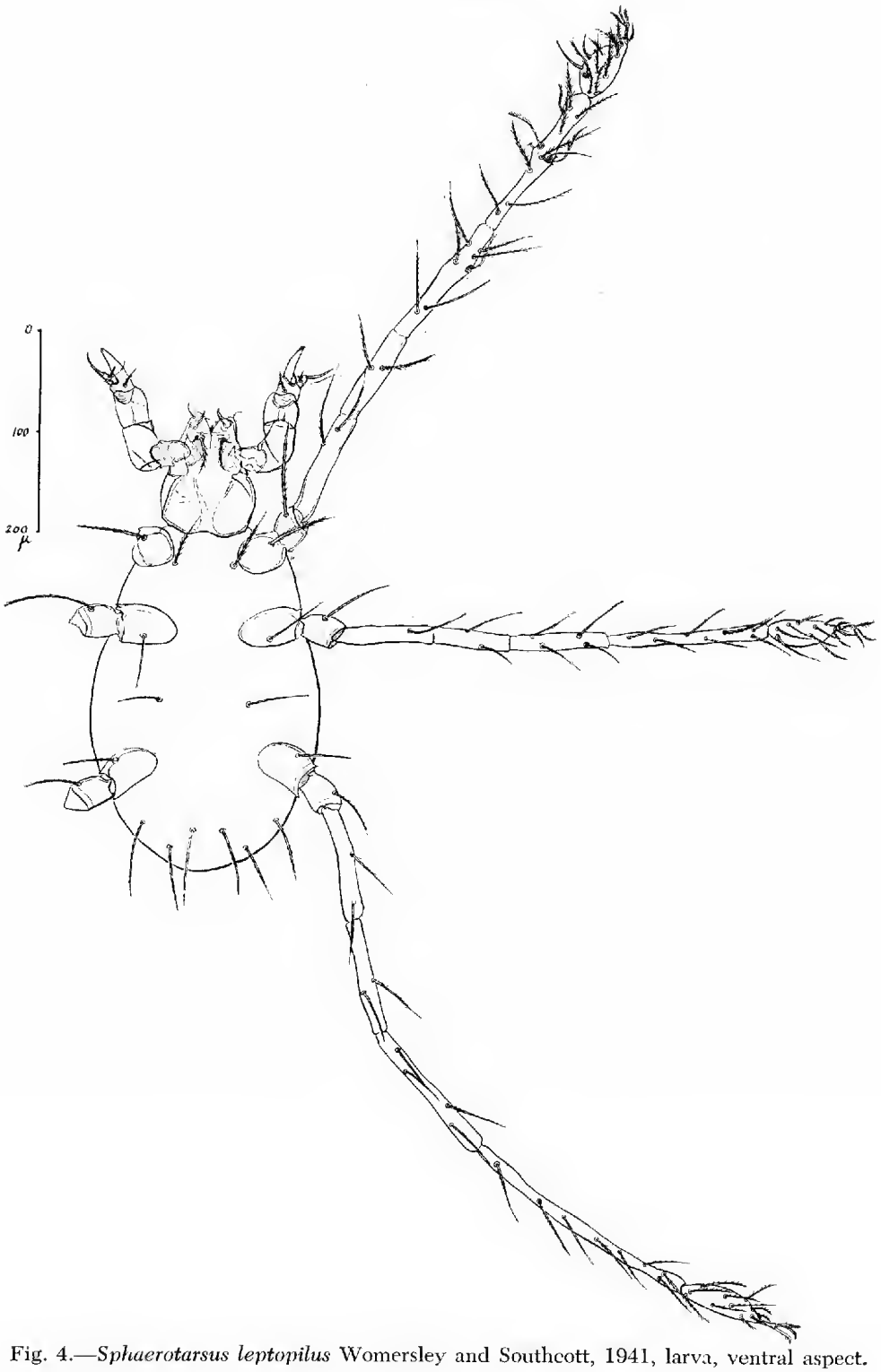

Fig. 4.—*Sphaerotarsus leptopilus* Womersley and Southcott, 1941, larva, ventral aspect.

dyliaspis, Eucalyptolyma and *Cardiaspina*. No parasitization was observed with any of these living insects, and the larval mites appeared to take only a momentary interest in them (in general if a suitable insect host is provided for them larval Erythraeoidea will attack at once, or within a very few minutes). Later I added a number of *Troctes* sp. or spp. (Psocoptera) from under bark of *Eucalyptus camaldulensis*, from East Parklands, Adelaide (10th May, 1952). These Psocoptera were added since the only host that has been discovered so far for an undoubted* larva of the Smarididae is this genus of Psocoptera (recorded by Womersley and Southcott (1941)) for the larva of *Smaris prominens* (Banks, 1916). Since then the writer has seen other specimens of larval *Smaris* from *Troctes* from north Queensland (see below). (These insects have been identified on the advice of various specialists, to whom a number of insects have been submitted, notably Mr. K. L. Taylor of the Division of Entomology, C.S.I.R.O., for the Psylloidea, and Dr. J. V. Pearman, of the British Museum, for the Psocoptera.)

The larval *Sphaerotarsus*, however, took no interest in the *Troctes*.

On 12th May, 1952, 6 eggs remained unhatched in the tube. Some of the insects added earlier remained alive. Further living insects were added to the tube on 12th and 13th May: further psyllids, a fly, an aphis, and although the larval mites walked over the insects they made no attempt to parasitize them.

On 14th May only one larva remained alive. Several eggs remained in the tube, being recorded as "ruby red". On 19th May one larva was running around in the tube, and on 20th May the tube contained two living larvae. Only four eggs now remained unhatched. On 26th May four larvae were active and well in the tube. The only insects remaining alive were the *Troctes*, but again no attempt to parasitize them by the mites was observed. Further insects were proffered to the larval mites, but none was accepted as a host.

On 1st June, 1952, one larva remained in the tube. No further record was made of this experiment until 1st August, 1952, when all the contents of the tubes were dead and dry.

In summary, therefore, the eggs are laid in late summer (January-February) and hatch out in the late autumn or early winter (April-May). The egg period lasts, therefore, approximately three months.

REMARKS ON BIOLOGY

The only other undoubted Smaridid upon which any substantial observations have been made upon the life history is *Smaris prominens*. The principal details of the life history of that species were given by Womersley and Southcott (1941). In a subsequent experiment done by the writer two adult females of *S. prominens* (number ACA 1506), captured from under bark of *Eucalyptus leucoxylon*, Heywood Park, Adelaide, South Australia, on 16th February, 1952, were placed in a tube. One had died by the following day. The other remained well and laid about 17 eggs in captivity, between 2nd and 16th March. The eggs were dark brown, smooth, spheroidal, 170-205μ long by 100-125μ across. These eggs did not hatch, possibly due to an infection with mould. It is known from the earlier field observations that the larva is parasitic upon *Troctes* in April-May in the Adelaide region, hence it may be concluded that the egg stage lasts about 1-8 months.

It may be remarked also that the writer has captured two further larvae of *S. prominens* at Kaban, north Queensland (Map reference Palmerston 1:63360

* The status of *Phanolophus* as a Smaridid is not absolutely certain (see Southcott, 1960). The larva of this monotypic genus, *P. oedipidarum*, is an ectoparasite of locusts in the Mediterranean region and in central Europe.

269982-270981), 24th August, 1944, specimens ACA 1633 A, B, parasitic upon the Psocoptera *Troctes* sp. (nymph) (Troctidae) (A 190) and a nymph (A 191), probably of *Pteroxanium kelloggi* (Rib.) (Lepidopsocidae) (= *Tasmanopsocus litoralis* Hickman) (identifications by the kindness of Dr. J. V. Pearman, British Museum; Dr. Pearman has given the foregoing synonymy and commented that in the case of A 191 "Identification based on what is discernible [in the slide mount]; some distinctive features obliterated"; pers. comm., *in lit.*, 1958).

In general it may be concluded that the life histories of the two Smaridids studied, *Smaris prominens* and *Sphaerotarsus leptopilus*, are broadly comparable, with (in southern Australia) the features of summer oviposition and the larval stage in autumn-winter.

The attempt to find a suitable host for the larval *Sphaerotarsus* by trial and error was unsuccessful, and the larvae have never been captured parasitic (or at all) in the field. It is possible that they have a restricted insect or other arthropod host. The hosts offered had not come from the locality where the species has been captured. The recorded range for the species is the southern end of the Mt. Lofty Ranges, the adults having been captured in *Eucalyptus baxteri-Eucalyptus cosmophylla* forest. It should be noted that the genus *Sphaerotarsus* is found fairly widely in Australia, so far having been recorded (with a total of four species) from South Australia, Victoria and New South Wales (see Womersley and Southcott, 1941).

REMARKS ON THE SYSTEMATICS OF *SPHAEROTARSUS*

The study of the adults of *S. leptopilus* allows some comment on the classification of the adults and nymphs of the genus. The writer sees no reason to doubt that the adults described are conspecific with each other and with the nymph of *S. leptopilus* described earlier. The dorsal idiosomalae correspond to each other reasonably well, allowing for the tendency to elongation which occurs in the Erythraeoid nymphal idiosomalae. The variation between the setae of the male and the female described should be noted, both in the dorsal idiosomal setae and in the cristal sensillae.

In the key of Womersley and Southcott (1941, p. 78) the nymph of *S. leptopilus* was separated off in the first caption by "Posterior sensillary setae 1·5 × as long as anterior" (i.e. the ASens/PSens ratio of ·67) together with other characters. The discovery of the adult stage with the ASens/Pens ratio of 24/47 = ·51 (female) and 18/46 = ·39 (male) makes some alteration to the key given necessary. At the present time, pending a full review of the genus in Australia, it is proposed that the following will serve to separate the adults and nymphs of this purely Australian genus:

1 Posterior cristal sensillae up to 2·5 × as long as anterior. 2
Posterior cristal sensillae 3·0 × as long as anterior, or more. 4

2 The dorsal flange of the dorsal idiosomal setae in outline a narrow triangle, apex pointing distally, and with "cross-bars" running out laterally; in the nymph the dorsal setae are similar, and broad. . . . . *S. womersleyi* Southcott 1946 (= *S. ripicolus* Womersley 1936, *nom. invalid.*)

The dorsal flange of the dorsal idiosomal seta not tapering distally, and without "cross-bars" running out laterally. In the adult the dorsal flange is rugose, and either broad-linear or elongate-oval in outline; in the female basal excavations may be present; in the nymph the setae elongate and slender. . . . . *S. leptopilus* Womersley and Southcott 1941.

3 As in (3) of the key of Womersley and Southcott (1941, p. 78) for *S. allmani* Womersley 1936 and *S. claviger* Womersley and Southcott 1941.

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